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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/998,153	11/29/2001	Chieng-Hwa Lin	016295.0732	5467

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EXAMINER	
HOANG, PHUONG N	
ART UNIT	PAPER NUMBER
2194	

MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/998,153	LIN ET AL.	
	Examiner	Art Unit	
	PHUONG N. HOANG	2194	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 July 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1, 3 - 10, 12 - 13, 15 - 20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 3 - 10, 12 - 13, 15 - 20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1, 3 - 10, 12 - 13, 15 - 20 are pending for examination.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 7/18/08 has been entered.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art (APA) in view of Hyder, US patent no. 6,253,255.

5. **As to claim 1**, the APA teaches a method for establishing a device driver in an open source operating system (device drivers of Linux open source operating system, page 3), comprising the steps of:

providing a device driver having at least one pre-compiled module in executable form (precompiled device driver); and compiling the device driver against the kernel of the open source operating system after each modification to the kernel of the open source operating system (a change to the source code of the kernel, …the device driver is recompilation against the kernel), wherein the step of compiling the device against the kernel comprises the step of associating the naming convention (naming convention …the function call names must match between the compiled kernel and the compiled device driver) of function calls in the kernel to the naming convention of expected function calls in the device driver;

wherein the compiled device driver acts as an interface between the kernel of the operating system and the at least one pre-compiled_executable module of the device driver (device driver used to interface and communicate between kernel and device), such that the kernel cannot access proprietary information of the pre-compiled executable module (this is the expected result, not a limitation; therefore, examiner does not have to map it).

The APA does not explicitly teach the device driver having a service layer that interface between the kernel of the operating system and at least of executable

modules. However, the APA teaches device driver used for communicating with kernel and device.

Hyder teaches a device driver having a service layer for that interface between kernel and lower-layer drivers (abstract interface, col. 4 lines 52 – col. 5 lines 15, figures 1 – 6 and associated text).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of the APA and Hyder's system because Hyder's abstract layer would transfer data between device driver and operating system to minimize the impact of interruption to the host system (col. 5 lines 5 - 15).

6. **As to claim 8**, it is the system claim of claim 1. See rejection for claim 1 above. In addition, Hyder teaches the service layer receives kernel-specific function calls from the kernel of the operating system (col. 4 lines 52 – col. 5 lines 15).

7. Claims 3 – 7, 9 - 10, 12 – 13, and 15 – 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art (APA) in view of Hyder, US patent no. 6,253,255, and further in view of Matia "Kernel Korner Writing a Linux Driver" pages 1 – 12.

8. **As to claim 3**, the APA and Itoh do not teach the compiled service layer to the at least one module in executable form to form the device driver.

Matia teaches linking the compiled service layer to the at least one module in executable form to form the device driver (linking, page 11 lines 10 – 12).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of the APA, Hyder, and Matia's system because linking step would integrate the device drivers at runtime to communicate with the kernel (page 11).

9. **As to claim 4**, Matia teaches the step of storing the device driver in memory (memory, page 1 lines 10 - 20).

10. **As to claim 5**, Matia teaches providing a device driver having multiple modules in executable form, each of the modules associated with hardware architecture of a computer system (driver functions, page 2 lines 20 - 30).

11. **As to claims 6-7**, they are rejected for the same reason as claims 3-4 above.

12. **As to claims 9 - 10**, see rejection for claims 4 - 5 above.

13. **As to claim 12**, the APA teaches the name convention comprises the use of a suffix for the naming of function calls, the suffix providing a naming convention that is specific to the kernel of the operating system (suffix of the function call, page 3 lines 10 - 15).

14. **As to claim 13**, this is a method for loading a device driver in a computer system claim that corresponds to the method claim 1 and method claim 3. Therefore, it is rejected for the same reason as claims 1 and 3 above.

15. **As to claim 15**, the APA teaches the step of recompiling (recompile, page 3).

16. **As to claim 16**, see rejection for claim 3 above.

17. **As to claim 17**, the APA, Matia, and Hyder do not specifically teach the step of determining, prior to compilation of the open source service layer, whether a precompiled device driver exists that is associated with the kernel of the operating system and loading the precompiled device driver if such a device driver exists.

It would have been obvious to one of ordinary skill in the art at the time of invention was made to determine whether a precompiled device driver associated with the kernel of the operating system existed and load it prior to compiling the open source service layer. One of the ordinary skill in the art would have been motivated to check for the existence of a precompiled device driver and load it before compiling to save compiling time and computational cycles, thereby allowing the computer system to operate more efficiently.

18. **As to claim 18**, Matia teaches the step of wherein the function calls passed between the kernel of the operating system and the compiled open source service layer are not specific to the hardware architecture of the computer system; and wherein the function calls passed between the compiled open source service layer and the precompiled driver modules are specific to the hardware architecture of the computer system (figure 1).

19. **As to claim 19**, see rejection for claim 15 above.

20. **As to claim 20**, the APA teaches loading a device driver of claim 19, wherein the recompiled service layer is operable to send and receive function calls that are named according to the same naming convention (page 3).

Response to Arguments

21. Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

22. Any inquiry concerning this communication or earlier communications from the examiner should be directed to PHUONG N. HOANG whose telephone number is

(571)272-3763. The examiner can normally be reached on Monday - Friday 9:00 am to 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng An can be reached on 571-272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Meng-Ai An/ Ph
Supervisory Patent Examiner, Art Unit 2195 September 9, 2008